SECTION 07 3113

ASPHALT SHINGLES

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LANL MASTER SPECIFICATION

When editing to suit Project, author shall add job-specific requirements and delete only those portions that do not apply to the Project (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the Engineering Standards Manual (ESM) Architectural POC. Refer to http://engstandards.lanl.gov/engrman/HTML/poc_techcom1.htm#elec for the Engineering Standards Manual Personnel Link Index.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within “stars” during editing.

Specification developed for ML-3 / ML-4 projects. For ML-1 / ML-2, additional requirements and QA reviews are required.

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PART 1 GENERAL

1.1 SECTION INCLUDES

A. Granular surfaced asphalt shingle roofing, moisture shedding underlayment, eave, and valley protection.

1.2 PERFORMANCE REQUIREMENTS

A. Asphalt Shingles: UL Class A Fire Hazard Classification.

1.3 SUBMITTALS

A. Submit the following in accordance with Section 01 3300:

1. Shop Drawings: Indicate specially configured metal flashings, jointing methods and locations, fastening methods and locations, and installation details.

2. Catalog Data: Data indicating material characteristics, performance criteria, and limitations.

3. Samples: Two full shingle samples of each shingle color indicating color range and finish texture/pattern.

4. Installation Instructions: Manufacturer’s installation criteria and procedures.

5. Warranty: As specified herein.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Follow Section 01 6000.

B. Deliver products in manufacturer's original containers, dry, undamaged, seals and labels intact.

C. Store products in weather protected environment, clear of ground and moisture.

D. Handle weather sensitive materials as required by the manufacturer. Permanently remove from the job any materials not handled per manufacturer's requirements or damaged by weather, moisture, etc.

1.5 QUALITY ASSURANCE

A. Perform Work per NRCA Roofing and Waterproofing Manual.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not install eave protection and shingles when surface, ambient air, or wind chill temperatures are below 40 degrees F.

B. Do not install over wet or frozen substrate.

1.7 WARRANTY

A. Furnish manufacturer’s standard warranty for asphalt shingles.

1.8 REGULATORY REQUIREMENTS

A. International Building Code: ICBO IBC-2003. This includes but is not limited to quantity of overlays, method of installation, and fasteners required.

PART 2 PRODUCTS

2.1 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Follow Section 01 2500.

2.2 ASPHALT SHINGLES

A. Manufacturers:

1. Celotex Corporation.

2. Certain Teed Corporation.

3. Elk Corporation of America.

4. GAF Building Materials Corporation.

5. Owens Corning Fiberglass.

B. Product Description: Asphalt shingles, ASTM D3018 Type 1, Class A, self sealing, wind resistance label, glass fiber mat base, mineral granule- surface, 220 pounds per 100 square foot weight, staggered edge butt type, color and texture [ ].

2.3 UNDERLAYMENT

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Specify underlayment “A” for applications > 15 years, “B for application < 10 years, and “C” for applications < 15 years.

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A. Underlayment/Eave (Ice Dam) Protection: Sheet barrier of rubberized asphalt bonded to sheet polyethylene, 40 mil total thickness, with strippable treated release paper

**********[OR]**********

B. Underlayment/Eave (Ice Dam) Protection: ASTM D226, No. 30, unperforated asphalt saturated felt.

**********[OR]**********

C. Underlayment/Eave (Ice Dam) Protection: ASTM D2178, Type IV, glass fiber felt.

2.4 ACCESSORIES

A. Nails: Standard round wire shingle type hot dipped zinc coated steel type, of sufficient length to penetrate through roof sheathing or 3/4 inch into roof sheathing.

B. Staples: Standard wire shingle hot dipped zinc coated steel type, of sufficient length to penetrate through roof sheathing.

C. Plastic Cement: ASTM D4586, Asphalt type with mineral fiber components, free of toxic solvents, capable of setting within 24 hours at temperatures of 75 degrees F and 50 percent relative humidity.

D. Lap Cement: Fibrated cutback asphalt type, recommended for use in application of underlayment, free of toxic solvents.

E. Ridge Vents: Plastic, extruded or formed with vent openings that do not permit direct water or weather entry, flanged to receive shingles.

F. Flashing Materials: Follow Section 07 6200.

2.5 FABRICATION

A. Form flashings to profiles indicated in Drawings, and/or to protect roofing materials from physical damage and shed water.

B. Form flashing sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

C. Hem exposed edges of flashings minimum 1/4 inch on underside.

D. Apply bituminous paint on concealed surfaces of flashings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify roof penetrations and plumbing stacks are in place and flashed to deck surface.

B. Verify roof openings are correctly framed.

C. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.2 PREPARATION

A. Fill knot holes and surface cracks with latex filler at areas of bonded eave protection. Cover knot holes in non ply decking with sheet metal.

B. Broom clean deck surfaces under eave protection and underlayment.

3.3 INSTALLATION

A. Eave (Ice Dam) Protection Installation (installation of underlayment):

1. Place eave edge and gable edge metal flashings tight with fascia boards. Weather lap joints minimum 2 inches and seal with plastic cement. Secure flange with nails.

2. Apply 4 inch wide band of plastic cement over deck flange of eave edge flashings, and embed minimum 18 inch wide strip of underlayment. Place underlayment starter strip with eave edge flush with face of flashings. Secure in place. Lap ends minimum 6 inches.

3. Apply lap cement at rate of approximately 1- 1/4 gallon per square foot over underlayment starter strip.

4. Starting from lower edge of starter strip, lay additional 36 inch wide strips of underlayment in lap cement to produce two ply membrane. Weather lap plies minimum 19 inches and nail in place. Lap ends minimum 6 inches. Stagger end joints of each consecutive ply.

5. Extend eave protection membrane minimum [4] [2] feet up-slope beyond interior face of exterior wall.

B. Protective Underlayment Installation:

1. Place one ply of underlayment over area not protected by eave protection, with ends and edges weather lapped minimum 6 inches. Stagger end laps of each consecutive layer. Nail in place.

2. When roof slope is less than 4 to12 place a second ply of underlayment over first layer with ends and edges weather lapped minimum 6 inches. Stagger end laps of each consecutive layer. Nail in place.

3. Install protective underlayment perpendicular to slope of roof and weather lap minimum 4 inches over eave protection.

4. Weather lap and seal watertight with plastic cement items projecting through or mounted on roof.

C. Valley Protection Installation:

1. Place one layer of sheet metal flashings, minimum 24 inches wide, centered over open valleys and crimped to guide water. Weather lap joints minimum 2 inches. Nail in place minimum 18 inches on center, 1 inch from edges.

2. SBS Roof Membrane Cap: ASTM D5147, Styrene Butylene Styrene (SBS) Modified Asphalt bitumen system with 100 percent polyester granule surfaced weathering, minimum sheet thickness 160 mils.

   a. Base Sheet: 100 percent polyester SBS base sheet applied over a solid uniform substrate complying with ASTM D4601 and ASTM D146.

D. Metal Flashing and Accessories Installation:

1. Weather lap joints minimum 2 inches and seal weather tight with plastic cement.

2. Secure in place with nails. Conceal fastenings.

3. Flash and seal work weather tight, projecting through or mounted on roofing with plastic cement.

E. Asphalt Shingles Installation:

1. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area. Double course of shingles at eaves.

2. Project first course of shingles 3/4 inch beyond fascia boards.

3. Extend shingles 1/2 inch beyond face of gable edge fascia boards.

4. Cap hips and ridges with individual shingles, maintaining 5 inch weather exposure. Place to avoid exposed nails.

5. After installation if daytime high temperatures are less than 70 degrees, place one daub of plastic cement, 1inch diameter under each individual shingle tab exposed to weather, to prevent lifting.

6. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counterflashings.

7. Complete installation to provide weather tight service.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

A. Do not permit traffic over finished roof surface.

B. Do not stockpile materials on finished roof surface.

END OF SECTION

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Do not delete the following reference information.
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FOR LANL USE ONLY

This project specification is based on LANL Master Specification Section 07 3113 Rev. 1, dated February 27, 2006.